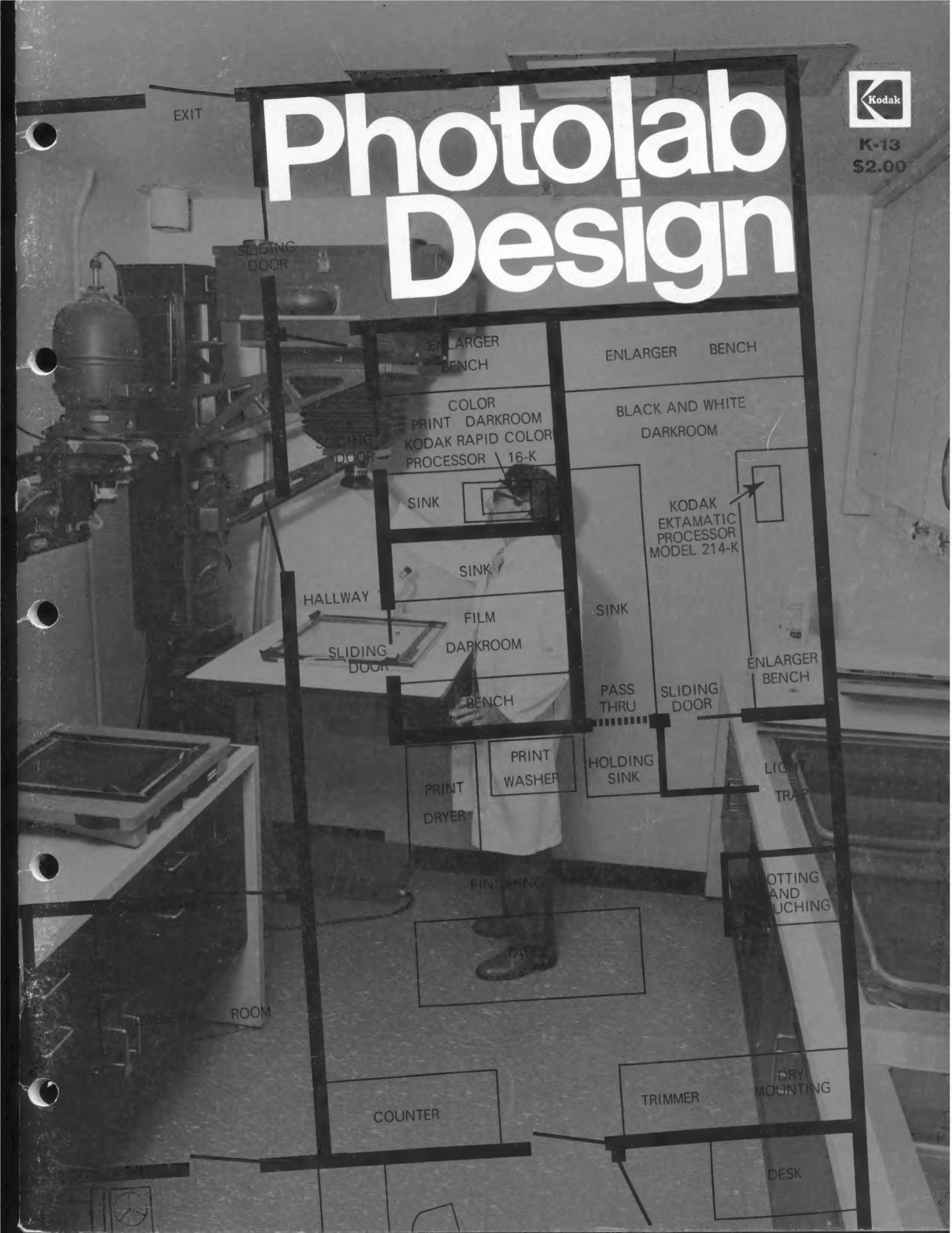
# Photolab Design




Kodak

K-13

$2.00

SECTION I

# Preliminary Planning

It is probable that the efficiency of any design for production facilities is in direct relationship to the amount of careful thought that is given to the initial stages of planning. The benefits of good design are far-reaching; the disadvantages of poor design can be costly in many ways and can eventually lead to expensive reconstruction.

The complexity of a building or modernizing project depends, of course, on its size and on the number of different operations it contains. If all you need is a small darkroom in a professional studio or in-plant photographic department, you can design the room yourself and have the construction work done by a building contractor to your specifications. The information in this book can help in choosing and specifying suitable materials for floor, walls, ceiling, fixtures, plumbing, and, to some extent, the electrical installation. One of the suggested layouts in this book can serve as a basic design or can be adapted to your specific needs.

If the project is a large one, you will need the services of an architect and perhaps those of an industrial engineer. An architect can design both the outside and the inside of the building, or he can draw up specifications and final plans based on your preliminary layout. Remember that an architect or other professional consultant concerned with the project may have no special knowledge of photographic work; therefore, you must monitor the entire undertaking to make sure that serious mistakes do not occur. An important function of the architect is to acquaint you with local building codes, zoning ordinances, and safety regulations. At the same time, he can provide a preliminary cost estimate. This is important, because you must know as soon as possible what the program will cost so that you can be sure that sufficient funds are available. If not, you can make some compromises during the planning stage.

When a project is extensive, the services of a competent industrial engineer are of great value. He can ensure that the space is utilized to the best advantage and that equipment is placed for the most efficient work flow.

If you are starting a new business or relocating an existing one, you will find many of the factors you need to consider in Kodak Publication No. O-1, *Photographic Studio Management*. While designed primarily for portrait and commercial photographers, this book details general business practices also useful for photolab planning. It discusses business organization, location, finance, cost control, personnel, capital, and other requirements for starting a photographic business.

Start your planning by posing a series of questions which you will have to answer as your planning proceeds. These questions are basic to a "needs analysis" and the answers will help to clarify your planning direction. You must answer these questions before you can start with a preliminary design and before you discuss your plans with an architect, a building contractor, a realtor, or your banker. Consider the following questions:

What kinds of operations will I be doing in the photolab?

- Black-and-white film processing?
- Black-and-white printing?
- Color film processing?
- Color printing?
- Print finishing?
- Lith film work?
- Motion-picture processing?
- Microfilming?
- Copying?

What volume of work do I anticipate in the new facility?

How many people will work in the photolab?

How much room do I have or will I need?

Is efficient work flow or best space utilization more important to me?

Is laboratory location important to my business?

What type of building is suitable?

Will I need mechanized equipment or can I do operations manually?

Are adequate utilities readily available?

What finances do I have or can I obtain?

Should I plan for future expansion as well as current needs?

Can I anticipate changes in my lab operation due to a changing market for my services?

Will my new facility provide a return in increased profit, better service, or increased production?

## RESEARCH

You have considered the need for a new facility and asked yourself many of the pertinent questions basic to planning for that need. Now you must assemble some facts and figures upon which to base an estimate of the size and scope of your new laboratory.

Divide your research efforts into (1) site or lab loca-

## LAYOUT CHECKLIST

| Room | No. Req'd. | Approximate Minimum Size Length x Width | Sq. Ft. |
|---|---|---|---|
| Reception | | 10X16 | 160 |
| Offices | | 8X10 | 80 |
| Dressing | | 6X8 | 48 |
| Mail-order receiving | | | |
| Prop storage | | 4X10 | 40 |
| Sensitized-goods storage | | | |
| Chemical storage | | | |
| Rest rooms | | 4X5 | 20 |
| Building services | | | |
| Lunchroom | | | |
| Studio or camera | | 20X24 | 480 |
| Process camera gallery | | 12X15 | 180 |
| Finishing | | | |
| Copying | | | |
| Chemical mixing | | 6X8 | 48 |
| Quality control or viewing | | 6X8 | 48 |
| Process camera darkroom | | 8X15 | 120 |
| Film loading darkroom | | 4X4 | 16 |
| Black-and-white film darkroom | | | |
| Color film darkroom | | | |
| Black-and-white printing darkroom | | | |
| Color printing darkroom | | | |
| | | | |
| | | | |
| | | | |

1. If only one operator works in a room, allow about 30-36 inches (75-90 centimeters) of space between benches or between bench and sink for free movement.
2. If two operators work together, allow about 36-42 inches (90-105 centimeters) of space for free movement.
3. If more than two people work together, allow at least 48 inches (120 centimeters) of space where they must pass one another, or use a common gangway.
4. A corridor that carries general traffic or that is the main route to a fire exit should be at least 60 inches (150 centimeters) wide.

In making your preliminary layout, allow space for a chemical-mixing room, storage rooms, an office, rest rooms, and an air-conditioning plant. If possible, locate rest rooms away from the main working area.

When you have determined the dimensions of each room by the foregoing method, combine the layouts of each area. Lay the templates on a large sheet of grid paper on which you have outlined the total space available. Remember to leave space for corridors and for free access to workrooms.

The following discussion on work flow will help you to lay out the various operations in a manner that will permit work to flow naturally from one stage of production to another.

## WORK FLOW

To avoid the waste of time and energy caused by backtracking and cross flow, place operations in the pro-

## WORK-FLOW CHART

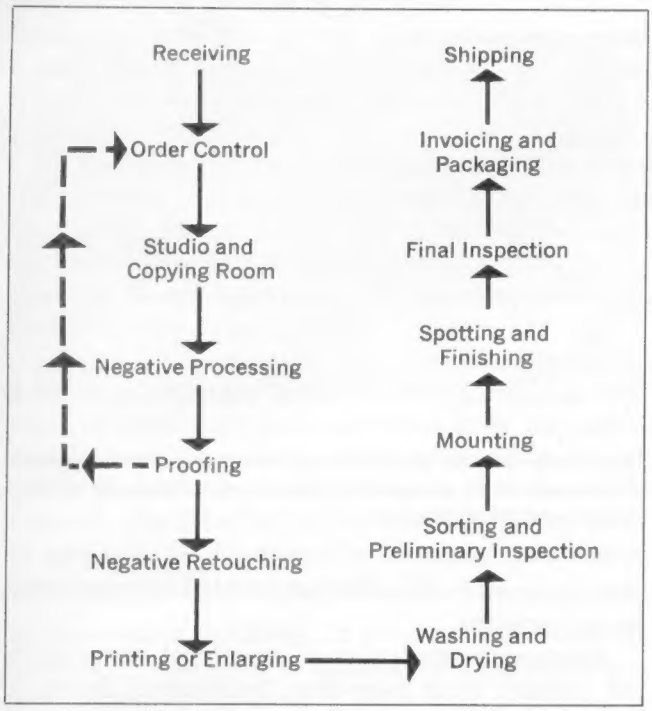



Diagram the sequence of lab operations to establish requirements for efficient work flow. Such a diagram will help with location of workrooms and placement of equipment.

duction cycle to follow each other in the order in which they are performed.

In a photofinishing plant, for example, where the order service time may be no longer than one day, hindrances to production and the orderly flow of work are of great concern. Therefore, work must be kept moving at all times. In a small studio or an in-plant photographic department, fitting the equipment into the smallest possible space or making each piece of equipment do as many jobs as possible may overrule work-flow requirements.

Start by checking orders in at an order control point, and then route them to the appropriate production section, where they merge with the general flow of work. Plan so that production proceeds in one direction only in an uninterrupted cycle which is completed at the dispatch point, situated near the order control desk.

Each operation in the chain of production must be manned and equipped to cope with the load from the preceding operations. Otherwise, a backlog of orders interrupts the work flow, and the output of the whole operation is reduced to that of the slowest section.

When these basic conditions are fulfilled, orderly work flow depends on the many details of photographic production. Some of these details are matters of good management; others concern good workmanship and the day-to-day problems of production.

**Sequence of Operations:** Ideally, the sequence of steps in photographic production should follow the pattern indicated by the work-flow chart at left. However, the pattern may have to be modified to suit the shape of a particular work area, to balance work load, or to accommodate individual operating requirements.

## EQUIPMENT

Selection of equipment for your photolab also requires your attention during the design process. You will select the equipment which will be permanently installed —sinks, cupboards, heating and air-conditioning units, and the like—in consultation with your architect or contractor. You are the one who will have to assess your photographic needs and to select that equipment.

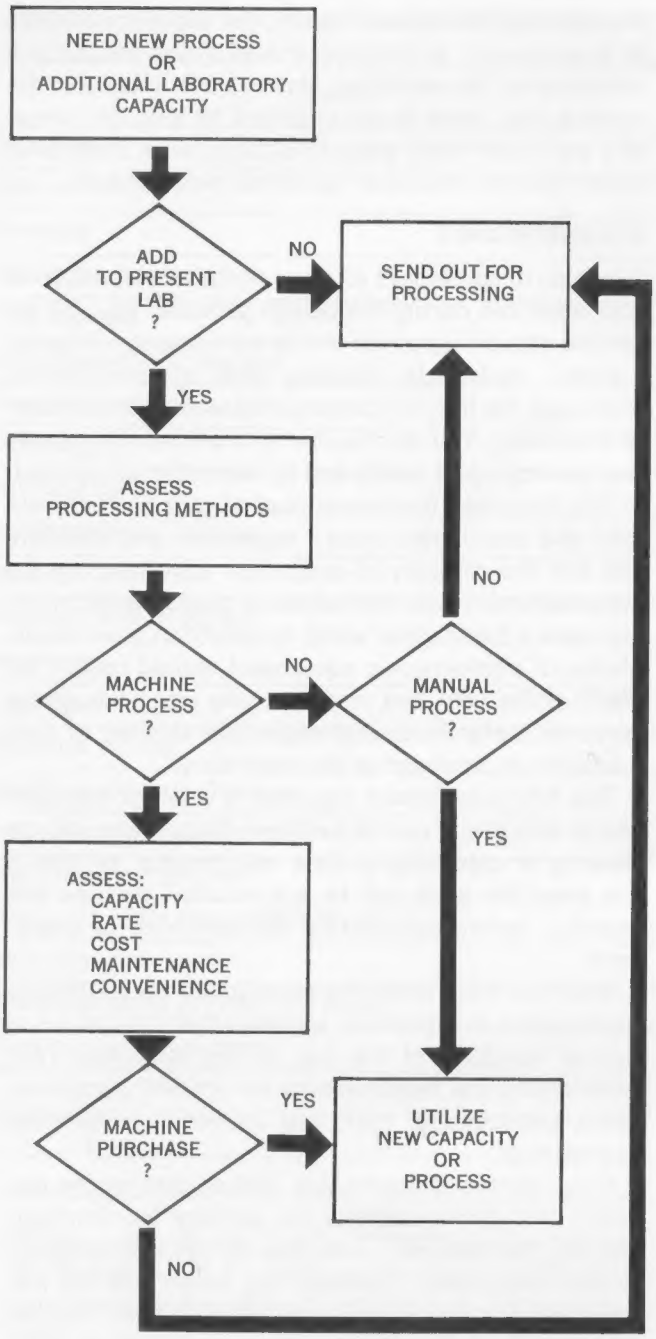
You must take the assessment of your current work load and anticipated future expansion and compare this with the capacity of equipment advertised by the manufacturer. If you are now doing photographic work, you have a basis upon which to establish your needs. Choice of photographic equipment should reflect the needs of the user and may also take into account the personal preferences and subjective desires of you, the owner or manager of the laboratory.

The first assessment required is whether the addition of equipment can be justified. Should you add the capacity or capability to do a new process, or should you send the work out to a specialist? Answer this question before considering the purchase of equipment.

Once you have made the assessment on addition of capacity or a new process, consider the alternatives of manual handling of the job or mechanization. You must assess the requirements for trained personnel, space, productivity, cost, and convenience to make this decision.

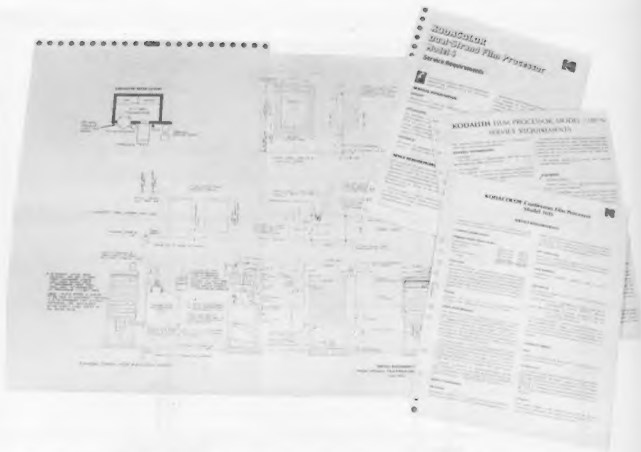
If you decide to mechanize, gather data on the machines and processors that can perform the functions you require. Manufacturers provide detailed analyses for their equipment. Consider the capacity of the machine. What is the widest material that it will handle? How much material will it handle per hour? What maintenance will it require? What is the price? Does this include necessary accessories? On the basis of the projected output (and expected profit), how long will it take to amortize the cost? Cost aside, is convenience alone a factor in considering purchase of the equipment? Is rapid access to the output a requirement of your business?

The requirements for supporting equipment must not be underestimated in evaluation of an equipment purchase. Consider, for instance, the purchase of an enlarger. In addition to the enlarger, you will need additional lenses (and perhaps matching condensers),




Decision Diagram for Process Method.

filter sets, a color head, a voltage stabilizer, a timer, an on-easel photometer, a static eliminator, and an easel. The enlarger is of little use if many or all of these accessories are not purchased with the enlarger itself. The same is true for other basic equipment, and such consideration can be an overriding factor in the purchase of an automatic printer or machine processor. To make a realistic assessment of equipment needs, you should consult with a photographic dealer who can help you to list the equipment and make recommendations on alternatives for added capacity, versatility, or convenience.



Information sheets on Kodak machines give physical dimensions and requirements for water, electricity, air supply, drains, and other services.

Appropriate positioning of equipment in the photolab includes much more than the personal desires of the operator. The equipment should be placed so that it contributes to smooth work flow and does not create a constriction in the production rate. Workers should not have to queue up to run their work through a processor, for instance. You must, of course, place the equipment where the necessary utilities are readily available. If you design or remodel your photolab with this in mind, you are not likely to discover that you cannot put a processor in a darkroom because you have neglected to provide an electrical circuit with sufficient capacity.

To plan for the installation of equipment, consult the detail plans on pages 19-34. These plans give a general idea of the floor space needed for various printers, processors, and allied equipment. For further details of service requirements for a particular Kodak machine, ask your Kodak Technical Sales Representative for the service requirements information sheet on that machine.

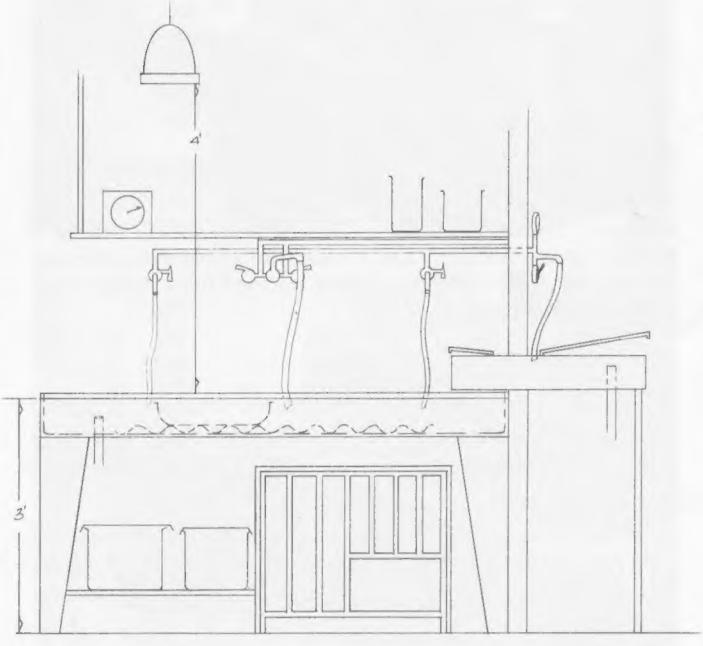
## DARKROOMS

### Processing Rooms

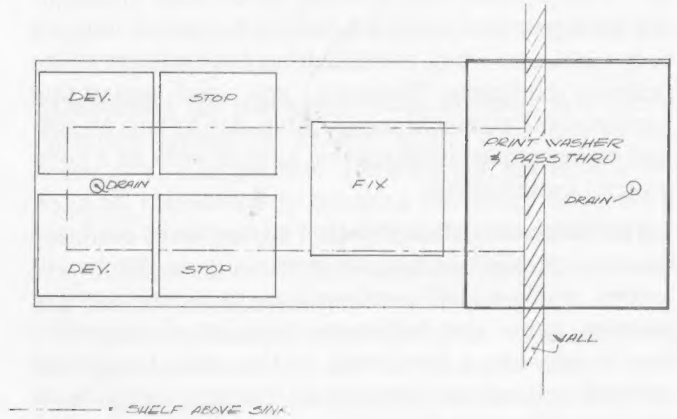
A film-processing room for black-and-white work is usually about 6 by 8 feet (2 x 2.5 meters). The space required for color-film processing varies according to the design of the processing unit, the number of steps in the process, and the arrangement of the tanks. One central wash tank can provide space saving in processing color films, provided that the tank is one of the quick-emptying or quick-dump types. On the other

black-and-white enlargements, refer to Kodak Pamphlet No. G-12, *Making and Mounting Big Black-and-White Enlargements and Photomurals,* available on request from Eastman Kodak Company, Dept. 412-L, Rochester, N.Y. 14650.

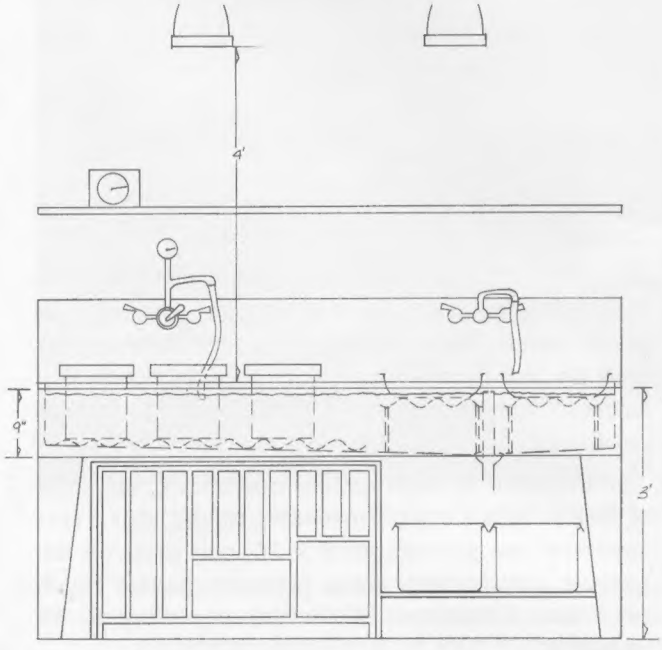
**Large Color Prints:** Process big enlargements on KODAK EKTACOLOR 74 RC Paper on drum-type processors specially made for the purpose. The KODAK Rapid Color Processor, Model 30A, handles 30 x 40-inch (75 x 100 centimeter) color prints and provides a 6-minute process for KODAK EKTACOLOR 74 RC Paper. The alternative to a drum processor is a large tank-type processor.



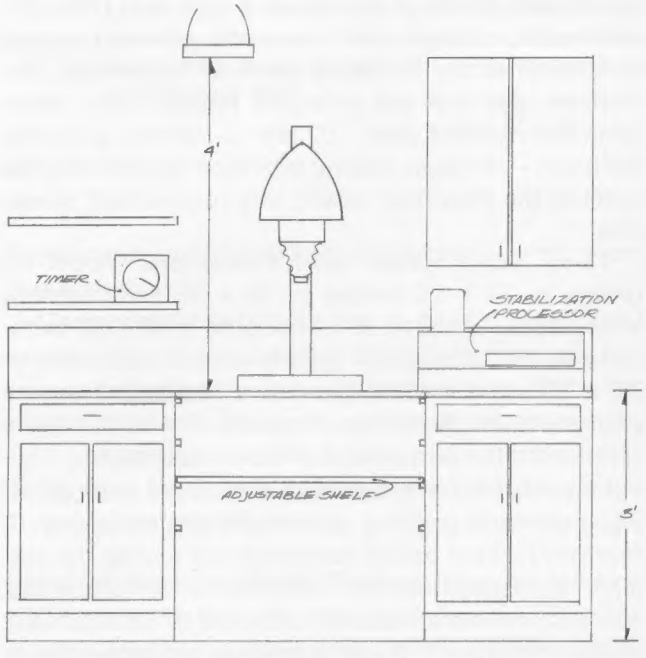

A center sink with a pass-through to the finishing area is useful for many larger darkroom applications.




For further information about making and mounting large color prints see Kodak Pamphlet No. E-54, *Preparing Large Color Prints on KODAK EKTACOLOR RC Paper,* available on request from Eastman Kodak Company, Dept. 412-L, Rochester, N.Y. 14650.

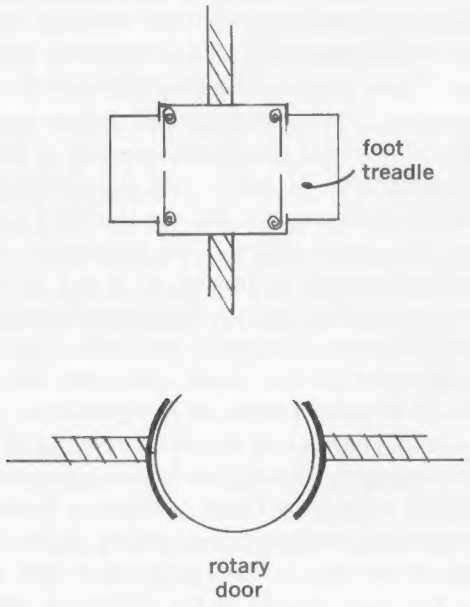


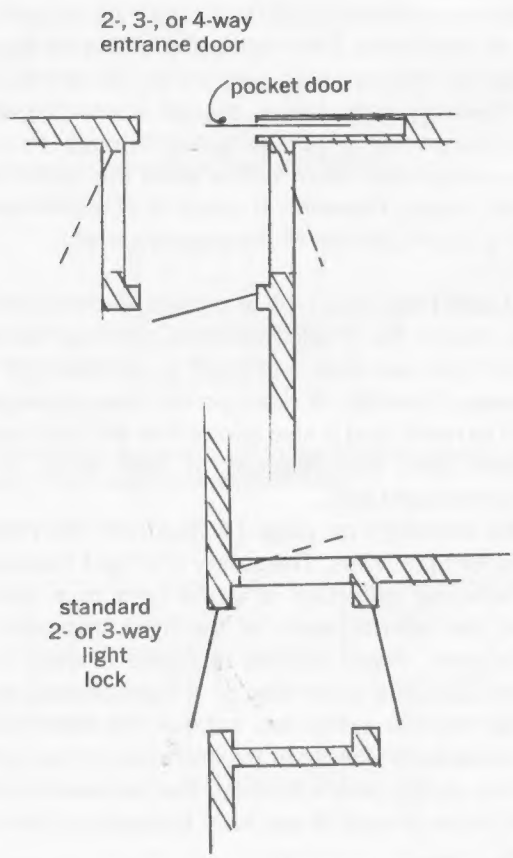

Equip the basic darkroom with a multi-purpose sink. Duckboards of various heights provide a place for film-processing tanks or print-processing trays.



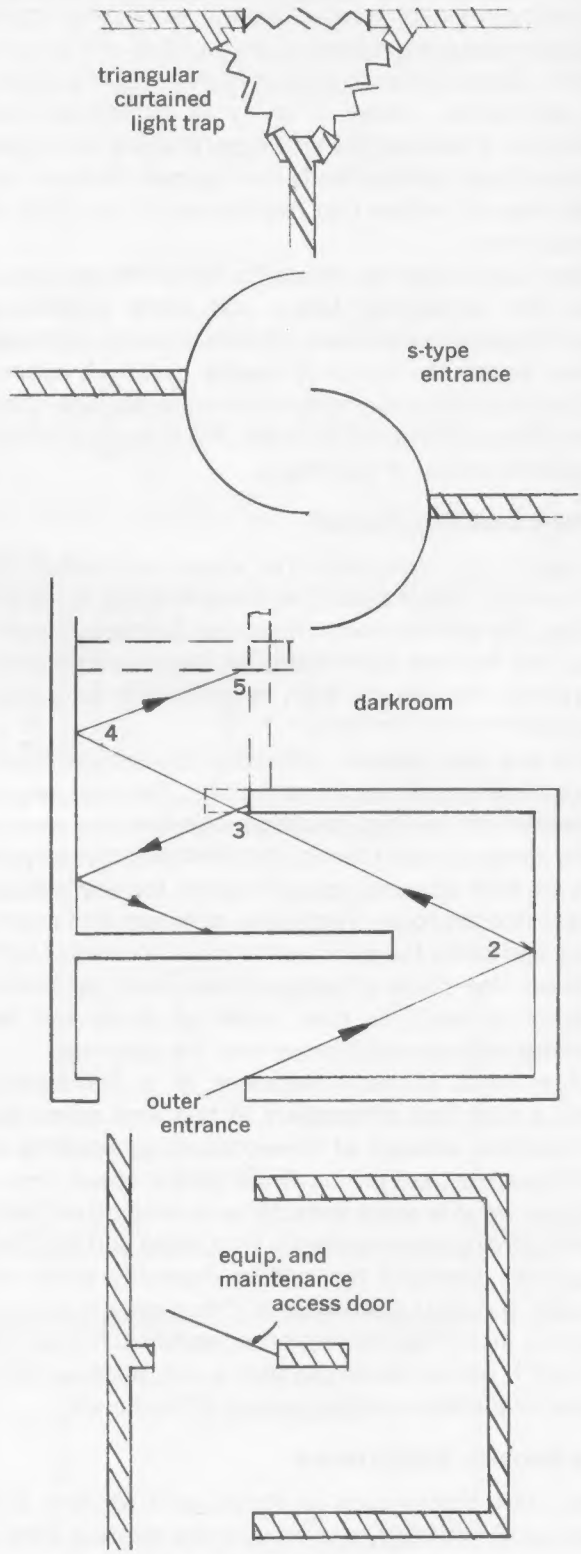

This enlarging station has ample cupboard and drawer storage. The enlarger easel can be lowered to provide additional enlargement capability. At either side of the enlarger is a space large enough for a stabilization processor.

**Light tight**
**(for first-generation images)**




**Light safe**
**(for second-generation images)**



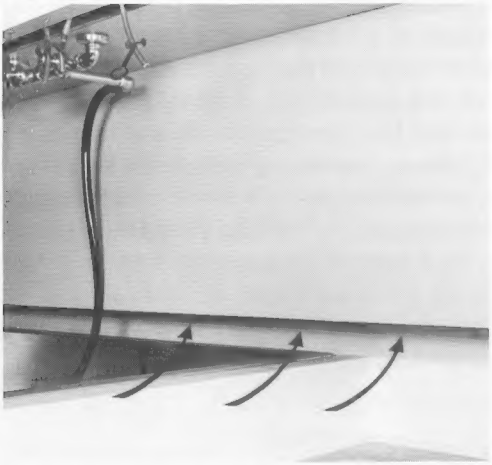

**Darkroom entrances:** The light trap or light lock is a unique feature of photolabs. A number of designs provide a choice for ease of access, space utilization, or light safety. The diagram with a projected ray from the outer entrance shows the requirements for constructing a maze-type light trap to block light reflections from outside.



piece of work which covers the true spectrum of photography for any photographer to build upon.

—*Pete Turner, Distinguished Photograph*

are distinguished members of the



An air exhaust opening at the rear of this sink provides airflow across the sink to remove fumes immediately.

A flexible duct, with or without an attached hood, should be available to withdraw fumes and dust from the chemical mix tank.

Heating and cooling systems that include mechanical humidifiers and electronic air-filters are now combined. Such a combined system is probably the most suitable installation for a new building or one that is being extensively modernized for photographic use. If you already have an efficient warm-air heating plant, you may add a cooling unit that utilizes the existing blower and duct-work.

As an alternative to the combined heating and cooling system, you can use a self-contained air conditioner to cool and dehumidify several rooms if they are on the same floor. This is a reasonably priced system for a small studio or an in-plant photographic department. Since an air conditioner must dissipate considerable amounts of heat and moisture, install self-contained units in an outside wall or in a window if you have one suitably placed and big enough. However, it is better to install these larger units in an aperture cut in the wall; it will fit better, and proper caulking around the unit will prevent drafts and dust from entering the room. Since heat from the sun decreases the efficiency of such a unit, put it in a northern wall of the building or where it is shaded from direct sunshine.

Individual room-type air conditioners will cool one or two smaller rooms satisfactorily. These units are available in a number of different sizes. Be sure to buy one that has the correct cooling capacity for the room in question. Too small a unit will be overloaded and will not perform efficiently, whereas one with too large a capacity will cost more and will be wasteful in operation.

## Air Cleaning

Most air-conditioning and ventilation plants are fitted with efficient filters to clean the incoming air. They normally do not remove the dust caused by people, work processes, and chemical spillage. In designing the workroom, you can minimize this problem by making the floor beneath processing sinks, washing tanks, and benches accessible for cleaning; by avoiding dust-holding ledges and overhead surfaces that are too high for easy cleaning; and by providing air ducts with clean-out openings which allow removal of accumulated dust.

Most ventilation systems provide a positive pressure within the building so that unfiltered air does not enter through doors and other openings. In addition, differential pressure should exist between areas where contaminants are handled and rooms where sensitized goods are used or stored. The air pressure in a chemical-mixing room, for example, should be slightly lower than that of the adjoining rooms. With this differential, air will flow into the contaminated area rather than outwards to spread chemical dust or vapors.

## Ventilation for Clean Rooms

In some critical applications of photography, freedom from dust is imperative. Such applications include processing and handling of high-level reconnaissance films, production of microminiaturization images, and editing and handling of valuable motion-picture negatives. For this kind of work, specially designed work spaces called "clean rooms" are needed.

The clean-air requirements for these spaces are, of course, stringent. Filtration of incoming air must remove 99.99 percent of dust particles measuring only 0.3 micrometer (about 13 millionths of an inch) or larger. Two or three stages of filtration provide this degree of cleanliness.

Recently, clean-room ventilation has benefitted from the use of laminar airflow applications. These techniques have advantages over the usual method of turbulent airflow. Laminar airflow yields direct stream lines which are uniform and predictable. Directed laminar airflow almost eliminates dust-distributing eddies and crosscurrents. Since airborne dust falls slowly, dust particles from work processes and people do not settle or accumulate but are borne away by the airstream. Air passing through a wall-sized bank of special, high-efficiency particulate air (HEPA) filters creates a directional flow.

The laminar-flow system can ventilate whole rooms,

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**-46,** *The Biological Treatment of Photographic-Processing Effluents*

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**-39,** *Water Conservation in Photographic Processing*

uggests ways in which water consumption in photoraphic processing can be reduced appreciably without loss in the quality of processing.

For further information concerning the disposal of hotographic effluents, contact:

**Photographic Chemical Markets**
**Eastman Kodak Company**

## WASTE DISPOSAL AND WASTE TREATMENT

Local conditions dictate the approach you must take toward this vital concern. You must, of course, form your plans to meet the requirements of your community. Since this aspect of your design requirements can change rapidly and is so conditioned by local concerns, we have not attempted to treat the subject here. Rather, we list below Kodak publications which have detailed information on the *current* composition of photographic chemicals, waste treatment procedures, regeneration of processing chemicals, and recovery of silver from spent processing baths.

The following are priced Kodak publications and can be obtained through photo dealers or ordered from Kodak by using the order form in the *Index to Kodak Information,* Kodak Publication No. L-5. Request a copy of the current *Index* from the address below.

**J-10,** *Recovering Silver from Photographic Materials*
Discusses various methods of recovering silver from waste sensitized goods and used processing solutions.

**U-1000,** *Information for a Cleaner Environment Literature Packet*
Contains about 12 technical pamphlets and Data Books with information about the safe and proper disposal of photographic-processing solutions.

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Single copies of the following Kodak publications can be obtained by writing to Eastman Kodak Company, Department 412-L, Rochester, N.Y. 14650.

**J-9,** *Silver Recovery with the KODAK Chemical Recovery Cartridge, Type P*
Describes the installation and use of inexpensive, yet highly efficient, equipment for removing silver from spent processing solutions.

**J-34,** *Regeneration of KODAK EA-5 Bleach and Replenisher*
Contains a ferricyanide regeneration procedure for KODAK EA-5 Bleach and Replenisher, and includes analysis procedures and reagent-mixing instructions.

**J-41,** *$BOD_5$/COD*
Presents five-day Biochemical Oxygen Demand and Chemical Oxygen Demand values for Kodak photographic-processing chemicals.

**J-42,** *The Regeneration of Ferricyanide Bleach Using Ozone*
A system is described that uses ozone gas to regenerate bleach overflow. Experimental results are evaluated and a list of equipment suppliers is included.


**J-43,** *A Simple Waste-Treatment System for Small Volumes of Photographic-Processing Wastes*
Describes the construction and operation of a simple, yet effective, waste-treatment system that can be constructed by the reader to handle 100 gallons (380 liters) or less of waste photographic solutions per day.

**J-44,** *In Support of Clean Water—Disposing of Effluents from Film Processing*
Evaluates photographic-chemical effluents in terms of sewer codes and stream standards. Methods are suggested for reducing the discharge of wastes.

**J-45,** *The Filter Press for the Filtration of Insoluble Photographic-Processing Wastes*
Methods are outlined for precipitating and recovering ferrocyanide, phosphate, silver, and dye couplers from photographic-processing wastes.

**J-46,** *The Biological Treatment of Photographic-Processing Effluents*
Outlines experimental work done on the biological treatment of photographic-processing effluents and describes the installation and use of equipment for treating effluents biologically. Also discusses steps finishers can take to make effluents more amenable to secondary biological treatment.

**J-52,** *Disposal of Photographic-Processing Solutions for the Small User*
Defines the small user and describes simple treatment and disposal methods for used processing solutions so that local effluent regulations are met.

**S-39,** *Water Conservation in Photographic Processing*
Suggests ways in which water consumption in photographic processing can be reduced appreciably without loss in the quality of processing.

For further information concerning the disposal of photographic effluents, contact:

**Photographic Chemical Markets**
**Eastman Kodak Company**
**Rochester, New York 14650.**

## SAFELIGHT RECOMMENDATIONS

| KODAK Filter | Color | KODAK Material | Bulb Wattage (110-130 volts) | |
|---|---|---|---|---|
| | | | Direct Illumination (not less than 4 ft [1.2 m]) | Indirect Illumination* |
| **NOTE:** Always refer to the carton or the instruction sheet packaged with the product for complete safelight recommendations. | | | | |
| OA | Greenish Yellow | Black-and-white contact and duplicating materials, projection films. | 15-watt | 25-watt |
| OC | Light Amber | Contact and enlarging papers, High Resolution Plate, TRANSLITE Film 5561, and OPALURE Print Film 5552. | 15-watt | 25-watt |
| OO | Light Yellow | Used for flashing halftones made through a KODAK Contact Screen. | 7½-watt 1.8 m (6 ft) | Not Applicable |
| No. 1 | Red | Blue-sensitive materials, KODAGRAPH Projection, and some LINAGRAPH Papers. | 15-watt | 25-watt |
| No. 1A | Light Red | KODALITH and KODAGRAPH Orthochromatic Materials. | 15-watt | 25-watt |
| No. 2 | Dark Red | Orthochromatic materials, green-sensitive x-ray films, EKTALINE Papers, and orthochromatic LINAGRAPH Papers. | 15-watt | 25-watt |
| No. 3† | Dark Green | Panchromatic materials. | 15-watt | 25-watt |
| No. 6B | Brown | Blue-sensitive x-ray films. | 15-watt | 25-watt |
| | | KODAK SB Film. | 7½-watt | 15-watt |
| No. 7 | Green | Some black-and-white infrared materials. | 15-watt | 25-watt |
| No. 8 | Dark Yellow | Some EASTMAN Color Print and Intermediate films. | 15-watt | 25-watt |
| No. 10 | Dark Amber | EKTACOLOR 37 RC, PANALURE, and PANALURE Portrait Papers. | 7½-watt | 15-watt |
| | | EKTACOLOR Slide Film 5028, EKTACOLOR Print Film 4109 (ESTAR Thick Base), and RESISTO Rapid Pan Paper. (*Not* recommended for EKTACHROME RC Paper, Type 1993 or EKTACOLOR 74 RC Paper.) | 15-watt | 25-watt |
| No. 11 | Appears Opaque, Transmits Infra-red Radiation | For use with infrared scopes. | 15-watt | Not Applicable |
| No. 13‡ | Amber | EKTACOLOR 37 RC, EKTACOLOR 74 RC, PANALURE, PANALURE Portrait, and RESISTO Rapid Pan Papers. § *DO NOT USE* with EKTACOLOR Slide Film 5028, EKTACOLOR Print Film 4109 (ESTAR Thick Base), and EKTACHROME RC Paper, Type 1993. | 15-watt 7½-watt‖ | 25-watt 7½-watt‖ |
| Type ML-2 | Light Orange | Dental x-ray films. | 15-watt | 25-watt |

**CAUTION:** Refer to particular product instruction sheets about time limitations on exposure to safelight illumination. This is particularly important with Safelight Filters No. 3, No. 7, No. 10, and No. 13.

*Data in this column refer *only* to use of the KODAK Utility Safelight Lamp, Model D.

†Follow instructions for use of the No. 3 filter when processing panchromatic films.

‡The No. 13 Safelight Filter is generally preferable to the No. 10 Safelight Filter for use with products that are listed under both filters because, with the 15-watt bulb for direct illumination, it provides brighter illumination.

§Use intermittently only to locate apparatus when using RESISTO Rapid Pan Paper.

‖For EKTACOLOR 74 RC Paper.

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| KODAK Filter | Color | KODAK Material | Bulb Wattage (110-130 volts) | |
|---|---|---|---|---|
| | | | Direct Illumination (not less than 4 ft [1.2 m]) | Indirect Illumination* |
| **NOTE:** Always refer to the carton or the instruction sheet packaged with the product for complete safelight recommendations. | | | | |
| OA | Greenish Yellow | Black-and-white contact and duplicating materials, projection films. | 15-watt | 25-watt |
| OC | Light Amber | Contact and enlarging papers, High Resolution Plate, TRANSLITE Film 5561, and OPALURE Print Film 5552. | 15-watt | 25-watt |
| OO | Light Yellow | Used for flashing halftones made through a KODAK Contact Screen. | 7½-watt 1.8 m (6 ft) | Not Applicable |
| No. 1 | Red | Blue-sensitive materials, KODAGRAPH Projection, and some LINAGRAPH Papers. | 15-watt | 25-watt |
| No. 1A | Light Red | KODALITH and KODAGRAPH Orthochromatic Materials. | 15-watt | 25-watt |
| No. 2 | Dark Red | Orthochromatic materials, green-sensitive x-ray films, EKTALINE Papers, and orthochromatic LINAGRAPH Papers. | 15-watt | 25-watt |
| No. 3† | Dark Green | Panchromatic materials. | 15-watt | 25-watt |
| No. 6B | Brown | Blue-sensitive x-ray films. | 15-watt | 25-watt |
| | | KODAK SB Film. | 7½-watt | 15-watt |
| No. 7 | Green | Some black-and-white infrared materials. | 15-watt | 25-watt |
| No. 8 | Dark Yellow | Some EASTMAN Color Print and Intermediate films. | 15-watt | 25-watt |
| No. 10 | Dark Amber | EKTACOLOR 37 RC, PANALURE, and PANALURE Portrait Papers. | 7½-watt | 15-watt |
| | | EKTACOLOR Slide Film 5028, EKTACOLOR Print Film 4109 (ESTAR Thick Base), and RESISTO Rapid Pan Paper. (*Not* recommended for EKTACHROME RC Paper, Type 1993 or EKTACOLOR 74 RC Paper.) | 15-watt | 25-watt |
| No. 11 | Appears Opaque, Transmits Infrared Radiation | For use with infrared scopes. | 15-watt | Not Applicable |
| No. 13‡ | Amber | EKTACOLOR 37 RC, EKTACOLOR 74 RC, PANALURE, PANALURE Portrait, and RESISTO Rapid Pan Papers. § *DO NOT USE* with EKTACOLOR Slide Film 5028, EKTACOLOR Print Film 4109 (ESTAR Thick Base), and EKTACHROME RC Paper, Type 1993. | 15-watt 7½-watt‖ | 25-watt 7½-watt‖ |
| Type ML-2 | Light Orange | Dental x-ray films. | 15-watt | 25-watt |

**CAUTION:** Refer to particular product instruction sheets about time limitations on exposure to safelight illumination. This is particularly important with Safelight Filters No. 3, No. 7, No. 10, and No. 13.

*Data in this column refer *only* to use of the KODAK Utility Safelight Lamp, Model D.

†Follow instructions for use of the No. 3 filter when processing panchromatic films.

‡The No. 13 Safelight Filter is generally preferable to the No. 10 Safelight Filter for use with products that are listed under both filters because, with the 15-watt bulb for direct illumination, it provides brighter illumination.

§Use intermittently only to locate apparatus when using RESISTO Rapid Pan Paper.

‖For EKTACOLOR 74 RC Paper.